
STATION
LIMITS
Cowcowing

Cyphanthera odgersii subsp. *occidentalis*

Translocation Proposal (salvage trial)

1. SUMMARY

Cyphanthera odgersii subsp. *occidentalis* is only known from a single population of 102 plants and is listed as declared as rare flora under the *Wildlife Conservation Act 1950.* It is ranked under internationally recognised criteria as Critically Endangered due to it facing an extremely high risk of extinction in the wild.

Ninety-six per cent of the total population occurs within a rail reserve at Cowcowing siding along the Wyalkatchem to Koorda railway in the Wheatbelt, and the remaining 4% occur on the adjacent private property. A large proportion of the plants are found within the maintenance zone of the railway line.

Brookfield Rail has planned an upgrade of the Wyalkatchem to Koorda railway line that will impact up to 20 per cent of the population of *Cyphanthera odgersii* subsp. *occidentalis,* which is considered significant to the conservation of this Critically Endangered species.

To offset the significant loss of number of individuals of *Cyphanthera odgersii* subsp. *occidentalis,* John Holland have also committed to fund a research project. The objectives of the project is to see if plants destined to be destroyed can be salvaged and

3.1 Taxonomy, History and Status

Cyphanthera odgersii subsp. *occidentalis* is a greyish shrub to 2.5 m tall with its branches and its broadly to narrowly ovate to elliptic leaves covered in dense woolly hairs 1 to 6.5 mm long. Flowers occur in dense clusters, often forming leafy spikes, with pedicels 0.5 to 2 mm long. The calyx is 4 to 7 mm long, the lower half covered in short downy hair becoming woolly above. The corolla is 5.5 to 8.5 mm long, white with purple striations, and is sparsely covered in downy hairs outside and densely covered inside, the lobes are broadly ovate and 1.3 to 1.8 mm long. The stamens are 1.3 to 2.5 mm long. The filaments are covered in non-glandular hairs at the base. The capsule is ellipsoid to ovoid, 3 to 5 mm long. The seeds are 2.8 to 3.4 mm long (Haegi 1982).

Cyphanthera odgersii subsp. *odgersii* differs from *C. odgersii* subsp. *occidentalis* in having leaves that are one to two times longer than they are wide, and corolla-lobes 2 to 2.5 mm long. The leaves of *C. odgersii* subsp. *occidentalis* in contrast are 2.3 to 4 times as long as they are wide, and the corolla lobes are smaller than those of *C. odgersii* subsp. *odgersii* (Coates *et al.* 1998).

Cyphanthera odgersii subsp. *occidentalis* is only known from a single population of 102 plants and is listed as declared as rare flora under the *Wildlife Conservation Act 1950.* It is ranked under internationally recognised criteria as Critically Endangered due to it facing an extremely high risk of extinction in the wild.

Ninety-six per cent of the total population occurs within a rail reserve at Cowcowing siding along the Wyalkatchem to Koorda railway in the Wheatbelt, and the remaining 4% occur on the adjacent private property. A large proportion of the plants are found within the maintenance zone of the railway line as *Cyphanthera odgersii* subsp. *occidentalis* requires fire or soil disturbance to stimulate germination of soil stored seed. Although the disturbance caused by rail maintenance results in the recruitment of some plants these are eventually destroyed during the next maintenance activity and the soil seed bank becomes depleted.

3.2 Distribution and Habitat

Cyphanthera odgersii subsp. *occidentalis* is confined to a single population in the central Wheatbelt of Western Australia.

Habitat is orange sandy soils and red-brown sandy and clayey loams in open mallee-heath. Associated species include *Allocasuarina acutivalvis* subsp. *acutivalvis, Acacia acuaria, A. yorkrakinensis* subsp. *acrita, Keraudrenia integrifolia, Grevillea pterosperma* and *Waitzia acuminata* var. *acuminata.*

3.3 Germplasm collection and Ecology

Cyphanthera odgersii subsp. *occidentalis* is killed by fire and regenerates from soil-stored seed (Cochrane *et al.* 2000) with seed germinating following grading of rail lines and vehicle access tracks and occasionally also after heavy rains.

4.2 Translocation Site Selection

All plants to be re-located under this proposal will be planted into the rail reserve within the boundary of the proposed rabbit proof fence which will encompass the known population and critical habitat of *Cyphanthera odgersii* subsp. *occidentalis* at Cowcowing siding (see Figure 1) and watered via an automated watering system to be supplied by John Holland. Design and installation will be the responsibility of DPaW staff.

According the Guidelines for the Translocation of Threatened Plants in Australia this type of translocation falls under the category of *Translocation undertaken as an ameliorative measure for development* known as a "Salvage dig": the transplantation of mature plants or soil seed bank to an area not affected by the development (Vallee et al 2004) .

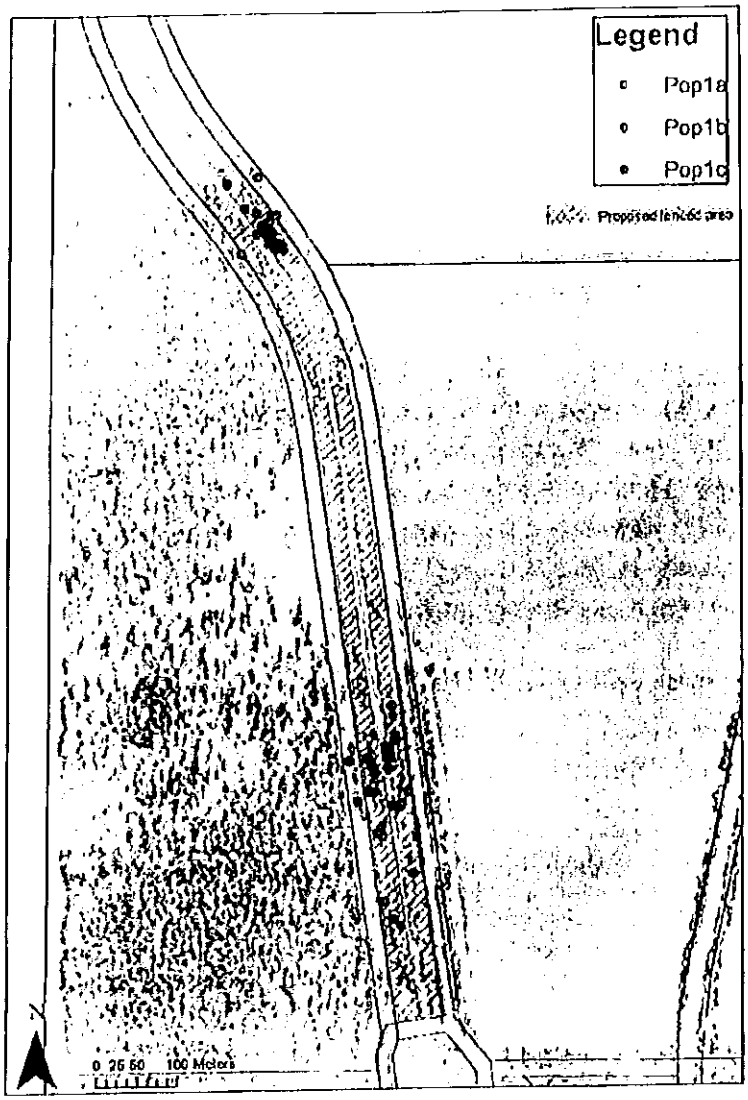

Figure 1. Map of extent of population of *Cyphanthera odgersii* subsp. *occidentalis* within the rail reserve.

All hand tools and equipment used during planting will be maintained under strict hygiene protocols to ensure weeds and disease are not introduced or spread through the population.

To maximise survival, plants will be watered by an automated watering system with approximately 2L of water per week from time of planting until May the following year and then October to May in the second year depending on the season. The entire population will be protected from vertebrate herbivore grazing and damage by the installation of a rabbit proof fence by John Holland as part of their commitment to conserving and management this population.

Salvaged plants will be monitored immediately after transplantation, then 3 monthly until a year old, and then six monthly thereafter. At each monitoring session the widest canopy width and width perpendicular to that, the height, health and for mature plants the number of flowers and fruits will be recorded.

Aims of the Translocation:

1) **To maintain the size (number of individuals) and genetic diversity of the single population of the Critically Endangered *Cyphanthera odgersii* subsp. *occidentalis*.**
2) **To determine if salvaging individuals of *Cyphanthera odgersii* subsp. *occidentalis* may be a successful method of obtaining plants for translocation.**

4.4 Site management

The rail reserve in which the population of *Cyphanthera odgersii* subsp. *occidentalis* occurs is under the management authority of Brookfield Rail, who has contracted John Holland Rail to maintain on their behalf.

John Holland Rail will be responsible for general site maintenance including the boundary fencing, and any necessary feral animal and weed control. All activities by John Holland at the site will be done in consultation with the Department of Parks and Wildlife (DPaW) Central Wheatbelt District to ensure they will not result in any negative impacts to the Threatened Flora or its critical habitat (or require a permit to take) and is consistent with approved flora conservation procedures and methodology.

DPaW Central Wheatbelt District has a responsibility for conserving and protecting native plants and animals in their district with a focus on high biodiversity values such as Threatened species. Due to their expertise in Threatened Flora management, Central Wheatbelt District staff will have the responsibility for undertaking all aspects of the translocation but will liaise closely with DRF permit holder Peter Bothwell of John Holland Rail to ensure permit conditions are met during the salvage operation.

- Recruitment of a second generation – seedling recruitment equivalent to or greater than that observed at the natural population (bearing in mind this may be nil if seedling recruitment is linked to disturbance and this does not occur in this timeframe).

Long term success of all plantings (greater than 10 years)
Recruitment of second and subsequent generations.

Failure
Initial failure of each planting (approx 1 year)
Less than 50% of plants transplanted into the natural populationsurviving beyond the first summer.

Medium term failure of all plantings (2-10 years)
- Less than 40% of all plants transplanted into the natural populationsurviving beyond first year
- Less than 80% of surviving plants producing viable seed at a rate similar to that of the non-transplanted plants.
- Seedling recruitment significantly less than that observed at the natural population.

Long term failure of all plantings (greater than 10 years)
Salvaged plants fail to recruit second and subsequent generations.

7. REFERENCES

Coates, D., Monks, L. and Agafonoff, A. (1998). Translocation Proposal Western Woolly Cyphanthera, *Cyphanthera odgersii* (F. Mull.) Haegi subsp. *occidentalis*Haegi (Solanaceae).Department of Conservation and Land Management, Perth, Western Australia.Unpublished Report.

Cochrane, A., Cunneen, S. and Yates, C. (2000). Population structure, soil seed bank dynamics,germination requirements and fire response of the Critically Endangered *Cyphanthera odgersii* (F. Muell.)Haegi subspecies *occidentalis*Haegi (Solanaceae), Unpublished Report.

Haegi, L. (1982). *Solanaceae.Flora of Australia Volume 29.* Canberra: Australian Government Publishing Service. pp 27-8

Vallee L., Hogbin T., Monks L., Makinson B., Matthes M. and Rossetto M. (2004) Guidelines for the Translocation of Threatened Australian Plants.Second Edition.*The Australian Network for Plant Conservation*. Canberra, Australia.

8. ENDORSEMENT

DISTRICT/ REGIONAL MANAGER: Vaughan Smith A/Regional Manager .....

Approved by (signature): .....

Date: 30 August 2013.....

MANAGER SCB: .....

Approved by (signature): .....

Date: 30/8/2013

DIRECTOR of NATURE CONSERVATION: Gordon Wyre

Approved by (signature): .....

Date: 3/9/13

Department of Environment and Conservation
Our environment, our future

Threatened and Priority Flora Report Form

Version 1.0 January 2010

Please complete as much of the form as possible, with emphasis on those sections bordered in black.

TAXON: Cyphanthera odgersii subsp occidentalis **TPFL Pop. No:** 1A

OBSERVATION DATE: 19/2/2013 **CONSERVATION STATUS:** DRF New population ☐

OBSERVER/S: Laura Canackle, Natasha Moore **PHONE:** 96213407

ROLE: Conservation Officer **ORGANISATION:** DEC - Nature Conservation

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place):

Railway reserve. 230-790m North of Cowcowing railway crossing (located at Cowcowing Siding) on both sides of Wyalkatchem-Koorda railway line.

Reserve No:

DEC DISTRICT: Central Wheatbelt District **LGA:** Wyalkatchem Land manager present: ☒

DATUM: GDA94 / MGA94 ☒ AGD84 / AMG84 ☐ WGS84 ☐ Unknown ☐

COORDINATES: (If UTM coords provided, Zone is also required) DecDegrees ☐ DegMinSec ☒ UTMs ☐

Lat / Northing: 30° 59 36.0"'

Long / Easting: 117° 27' 02.7"

ZONE:

METHOD USED: GPS ☐ Differential GPS ☐ Map ☐

No. satellites: _____ Map used: _____

Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐ National park ☐ Conservation park ☐ Timber reserve ☐ State forest ☐ Water reserve ☐ Private property ☐ Pastoral lease ☐ UCL ☐ Rail reserve ☒ MRWA road reserve ☐ SLK/Pole _____ to _____ Shire road reserve ☐ Other Crown reserve ☐ Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☐ Full survey ☒ Area observed (m²): 97000

EFFORT: Time spent surveying (minutes): 240 No. of minutes spent / 100 m²: 0.25

POP'N COUNT ACCURACY: Actual ☒ Extrapolation ☐ Estimate ☐ Count method: _____ (Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:	Mature:	Juveniles:	Seedlings:	Totals:
Alive	54	2		56
Dead	37	6		43

Area of pop (m²): _____

Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☒ Flowerbud ☐ Flower ☐ Immature fruit ☐ Fruit ☐ Dehisced fruit ☐ Percentage in flower: _____ %

CONDITION OF PLANTS: Healthy ☐ Moderate ☒ Poor ☐ Senescent ☐

COMMENT: Condition of plants ranges from senescent to very healthy

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Road and rail works	L	E	S
• Grazing - rabbits, roos, parrots	M	H	M
• Weeds	L	H	L

Please return completed form to DEC, Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

RECORDS: Please forward to **Administrative Officer, Flora,** Species and Communities Branch.

Record entered by: _____ **Sheet No.:** _____ **Record Entered in Database** ☐

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Threatened and Priority Flora Report Form

Version 1.0 January 2010

HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☒
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☒
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☒
Sandy loam ☐
Loam ☐
Clay loam ☐
Light clay ☐
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☐
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: 1. Banksia woodland (B. attenuata, B. ilicifolia); 2. Open shrubland (Hibbertia sp., Acacia spp.); 3. Isolated clumps of sedges (Mesomelaena tetragona)

1. Eucalyptus sp, Acacia sp, Hakea sp, Allocasuarina acutivalvis.
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☒ Good ☐ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: June Year: 2007 **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☐

FENCING: Not required ☐ Present ☒ Replace / repair ☒ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☐ Present ☒ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

Update location description.

Some plants occur in fenced plots, some of which were burnt for recruitment in 2007.

Some smaller adult plants (approx 2-3 years old) are growing next to rail line and may be taken during rail maintenance

Possibilty of partnership with John Holland Rail to translocate/ relocate the individuals (approx 28) and fund fencing for larger area.

SPECIMEN: Collectors No: _____ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other: _____

ATTACHED: Map ☒ Mudmap ☐ Photo ☒ GIS data ☐ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other:

Submitter of Record: L. Canackle Role: Conservation Officer Signed: _____ Date: 15/4/2013

Please return completed form to DEC, Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983

RECORDS: Please forward to **Administrative Officer, Flora,** Species and Communities Branch.

Record entered by: _____ **Sheet No.:** _____ **Record Entered in Database** ☐

Peter Smyth + Brookfield IRW + Department of Parks + Environment Marking Plants for removal 3 Sept 2013